

REQUEST FOR GRANT OF A PATENT

1. Applicant: (71)

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3. Name of the invention: (54)

Vane pump with movable sleeve

Name of the invention on English:

Vane pump with movable sleeve

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☐ The inventor does not want to be
indicated in the application
(30)

5. Priority:

6. Basic application number: (61) 7. Basic application number in case of
divisional application (62)

8. Additional sheets:

☐ Declaration on legal bases to file
the application

☐ Data regarding other applicants

☐ Inventor's declaration that does not
want to be as inventor

☐ Evidence of depositing of biological
material

☐ Copy of the Priority Application

☐ Data regarding other inventors

☐ Declaration of collective
representative

☐ Certificate of exhibition of the
invention on internationally
recognized fair

☐ Power of Attorney

☒ Evidences of paid taxes

9. References of the application:

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Abstract ☒

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VANE PUMP WITH MOVABLE SLEEVE

Pump (Fig. 1) comprises casing (1), rotor with vanes and shaft (2), movable sleeve (3), two lids (4), two end stops (5) and two supports (6 and 7).

Movable sleeve (3) has two apertures (a). It is obvious from the Fig. 6 that the arcs (m and n) are unequal (Fig. 2), so it is necessary to overcome this disparity in the moment when vanes are approaching the aperture (a). Solution to this problem is obtained by one end of each aperture being slanted (Fig. 7). When the sleeve (3) moves axially, the vanes will reach the aperture (a) earlier or later.

The slanted end of the aperture on one side of the sleeve (3) is 180 degrees opposed to the slanted end on the other side.

Circulation channels (b) can be executed in three variants:

- first variant Fig 3: circulation channels (b) are in the movable sleeve (3)
- second variant Fig. 4: circulation channels (b) are partially in the movable sleeve (3) and partially in the casing (1)
- third variant Fig. 5: circulation channels (b) are in the casing (1)

To achieve axial movement, the sleeve (3) Fig. 1 needs guidance which it gets from the inclined surface on support (6). Since the sleeve (3) is not subject to axial forces, there is one spring located at the support (7) which is not depicted in the drawing.

Sleeve (3) can move angularly (arcuately) to change the fluid flow. Regardless of the rotational direction of the rotor, by turning the sleeve for the full circle in any direction the fluid flow is changed from zero to maximum in one direction and then through zero to maximum in the opposite direction and finally to zero again.

Rotor (excluding vanes) should not touch the sleeve.

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